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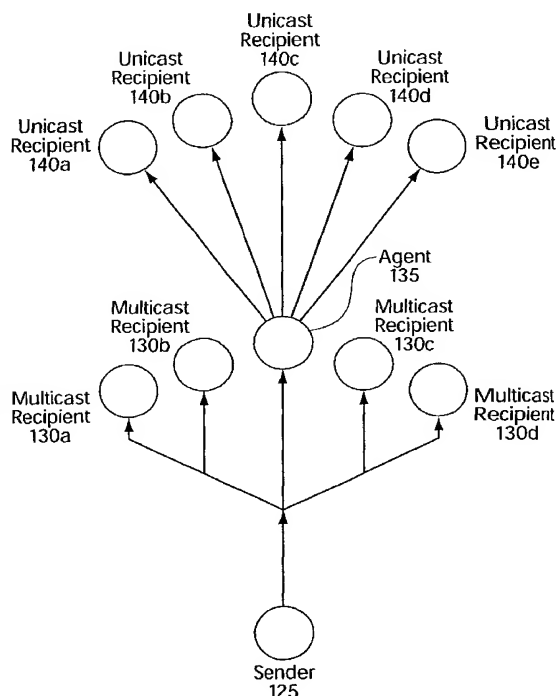
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(54) Title: METHOD AND SYSTEM FOR MULTICAST TO UNICAST BRIDGING



(57) Abstract: The present invention relates to a method and a system for sending multicast information to a user. The present uses agents, network programs, that reside on multicast-enabled computers. The agents receive multicast data packets sent to members of a multicast group. The agents repackage the multicast information into a unicast data packet and forward the unicast data packet to a client registered with the agent. The agent may maintain a list of clients for whom it provides service along with information on the multicast group(s) from which the client wants to receive information. Clients may register with an agent by sending a join message. In one embodiment of the present invention, the join message is sent to a source server, another computer program, that handles the assignment of clients to agents. The source server may maintain and/or generate information concerning client/agent pairings that may be used in the assignment process. For example, a composite distance metric calculating some value such as latency or distance between a client and an agent (a client/agent pair) may be used. In another embodiment of the present invention, the client may register directly with an agent. In this embodiment, the agent to which the client sends the join message to may become the agent providing the multicasting-to-unicast bridging services to the client. In a third embodiment of the present invention, the client may send a join message to an agent, where this first agent may be termed a primary agent. The primary agent may determine the agent responsible for providing service to the client (which may be termed the service provider agent). The primary agent may maintain/or generate client/agent pair information such as the composite distance metric to assist with client/service provider agent

pairing. Unlike the source server, in this embodiment one to all of the agents may serve as a primary agent and all the primary agents may also function as service provider agents. The source server, the client(s), and the agent(s) may be distributed over several computer systems connected over a communications network such as the Internet.

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INTERNATIONAL SEARCH REPORT

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B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 20846 A (ERICSSON TELEFON AB L M) 22 March 2001 (2001-03-22)	1-4
Y	page 2, line 12 -page 3, line 3 page 5, line 10 - line 14 page 5, line 28 -page 6, line 2 page 6, line 4 - line 7 page 6, line 30 -page 7, line 18 page 8, line 27 -page 9, line 21 page 10, line 2 - line 7 ---	5-47
Y	EP 0 902 569 A (AT & T CORP) 17 March 1999 (1999-03-17) abstract paragraph '0004! - paragraph '0005! paragraph '0008! - paragraph '0010! paragraph '0014! --- -/--	5-47



Further documents are listed in the continuation of box C.



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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01 18641 A (FASTFORWARD NETWORKS INC) 15 March 2001 (2001-03-15) page 1, line 24 - line 31 page 3, line 3 - line 12 page 4, line 25 -page 5, line 3 page 7, line 8 - line 12 page 9, line 17 - line 32 page 17, line 1 - line 18 page 29, line 11 - line 30 page 30, line 1 - line 24 figures 8,9 ---	1-47
A	EP 1 071 296 A (CIT ALCATEL) 24 January 2001 (2001-01-24) paragraph '0002! - paragraph '0004! paragraph '0006! paragraph '0010! - paragraph '0018! paragraph '0023! -----	1-4, 14-16, 19-26, 30-35

INTERNATIONAL SEARCH REPORT

Information on patent family members

In International Application No

PCT/IB 02/00897

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0120846	A	22-03-2001	AU 7325700 A WO 0120846 A2	17-04-2001 22-03-2001
EP 0902569	A	17-03-1999	US 6259701 B1 CA 2245979 A1 EP 0902569 A1	10-07-2001 11-03-1999 17-03-1999
WO 0118641	A	15-03-2001	US 6415323 B1 AU 7341500 A EP 1242870 A1 JP 2003508996 T WO 0118641 A1 US 2003105865 A1	02-07-2002 10-04-2001 25-09-2002 04-03-2003 15-03-2001 05-06-2003
EP 1071296	A	24-01-2001	EP 1071296 A1 AU 4262200 A CA 2313984 A1 JP 2001077859 A	24-01-2001 25-01-2001 22-01-2001 23-03-2001